BLACK & VEATCH

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Black & Veatch Special Projects Corp.

USEPA
Missouri Electric Works

BVSPC Project 46501.235
BVSPC File C.3
December 16, 2002

U.S. Environmental Protection Agency
Region VII
901 N. 5th Street
Kansas City, Kansas 66101

Subject: Data Validation Report for Split Groundwater Samples – RD/RA Oversight at Missouri Electric Works Site

Attention: Pauletta France-Isetts

Gentlemen:

Enclosed is the data validation report for the three split groundwater samples that were collected at the Missouri Electric Works site on October 31, 2002. The samples were collected from MW3, MW4, and MW11 and analyzed for VOCs, SVOCs, and PCBs. The data validation package was prepared by our pool subcontractor, Validata Chemical Services, Inc. As indicated in the data validation report, the data for VOCs and PCBs are acceptable without qualification.

The analyses for 28 of the 198 SVOC analytes were rejected because the percent recoveries of phenol-d5 were below the 12-36 percent recovery criteria. Consequently, all results for the acid compound fraction of SVOCs in samples MW4 and MW11 were rejected. These sample results consisted entirely of non-detects. Of the analytes that were rejected, only phenol has been detected at the site. Phenol has not been previously detected in any of the wells where the split samples were collected.

The overall percent completeness for the data was 92 percent which exceeded the goal of 90 percent. When the data from the primary samples are submitted by the PRPs, we will complete a letter data evaluation report comparing our data with the data from the primary samples.

If you have any questions or desire additional information, please contact me at (913) 458-6605.

Very truly yours,

BLACK & VEATCH SPECIAL PROJECTS CORP.

H. David Sanders
Site Manager

ds
Enclosure

VALIDATA
Chemical Services, Inc.
4070 Baileycastle Lane, Duluth, GA 30097

DATA VALIDATION SUMMARY REPORT

COMPANY:	Black & Veatch Special Projects Corp.
SITE NAME:	Missouri Electric Works Site (MEW) - Cape Girardeau, Missouri
PROJECT NUMBER:	046501.0235
CONTRACTED LAB:	TRACE Analytical Laboratories, Inc.
QA/QC LEVEL:	EPA Level III
EPA SOW/METHODS:	EPA SW-846, Methods 8260B, 8270C, 8082
VALIDATION GUIDELINES:	*USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 1999
SAMPLE MATRICES:	Water
TYPES OF ANALYSES:	Volatile Organics, Semivolatile Organics, Polychlorinated Biphenyls (PCB)
SDG NUMBER:	CL006 (Level III)

OVERVIEW

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Volatile Organics	Semi-volatiles	PCB
MW4-103102-S	CL006-01	Water	X	X	X
MW3-103102-S	CL006-02	Water	X	X	X
MW11-103102-S	CL006-03	Water	X	X	X
TB-1	CL006-04	Water	X		
TB-2	CL006-05	Water	X		

Sample ID Code: TB = TRIP BLANK

DATA REVIEWER(S): Marvin L. Smith, Jean M. Delashmit

RELEASE SIGNATURE: 

Data Qualifier Definitions

J	-	The associated numerical value is an estimated quantity.
R	-	The data are unusable (the compound/analyte may or may not be present). Resampling and reanalysis are necessary for verification.
U	-	The compound/analyte was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.
UJ	-	The compound/analyte was analyzed for, but not detected. The sample quantitation limit is an estimated quantity.

DATA QUALIFICATION SUMMARY

TRACE Analytical Laboratories, Inc. - SDG CL006 Organics

SAMPLES: MW4-103102-S, MW3-103102-S, MW11-103102-S, TB-1, TB-2

VOLATILE ORGANICS

SUMMARY

I.) General:

The analyses for Volatile Organics were performed using Method 8260B.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major problems were observed in this SDG. No action was necessary.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was necessary.

III.) Calibration:

Initial Calibration:

The Percent Relative Standard Deviation (%RSD) was 32.3% for methylene chloride in the standards analyzed on 10/11/02 on instrument LOLA, which exceeded the 30% QC limit. Since this compound was not detected in the SDG samples, no action was taken.

Continuing Calibration:

All Continuing Calibration criteria were met. No action was necessary.

IV.) Blanks:

There were no positive results in the method or trip blanks. No action was required.

Tentatively Identified Compounds (TIC's):

TIC data were not submitted for this SDG. No action was necessary.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was taken.

VI.) Laboratory Control Samples (LCS):

One set of LCS / LCSD samples was analyzed in this SDG. All LCS criteria were met. No action was necessary.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were associated with SDG CK303. All MS / MSD criteria were met. No action was taken.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in the SDG. No action was required.

IX.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No action was required.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was taken.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All Compound Quantitation and CRQL criteria were met. No action was necessary.

XII.) System Performance:

All System Performance criteria were met. No action was taken.

SEMIVOLATILE ORGANICS

SUMMARY

I.) General:

The analyses for Semivolatile Organics were performed using Method 8270C.

II.) Overall Assessment of Data:

All acid compound results in the two SDG samples were rejected because of a low (less than 10%) recovery of the phenol-d5 surrogate. All other laboratory data were acceptable with qualifications.

MAJOR ISSUES

I.) Surrogate Recoveries:

The Percent Recoveries (%R's)of phenol-d5 were below the 12-36% QC limits in the following samples:

Sample ID	%R
MW4-103102-S	1%
MW3-103102-S	13%
MW11-103102-S	1%

All results for the acid compound fraction in samples MW4-103102-S and MW11-103102-S, which consisted entirely of non-detects, were rejected (R) since the %R's were less than 10%. In addition, all results for the acid compound fraction in sample MW3-103102-S, which consisted entirely of non-detects, were qualified as estimated (UJ).

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was taken.

II.) GC / MS Tuning:

All GC / MS Tuning criteria were met. No action was necessary.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was required.

IV.) Blanks:

There were no positive results in the method blank. No action was required.

Tentatively Identified Compounds (TIC's):

TIC data were not submitted for this SDG. No action was necessary.

V.) Surrogate Recoveries:

Please refer to the Major Issues Section for applied data qualifications.

VI.) Laboratory Control Samples (LCS):

One set of LCS / LCSD samples was analyzed in this fraction of the SDG. The Percent Recovery (%R) of 4-nitrophenol (56%) in the LCS sample exceeded the 9-50% QC limits. Since this compound was not detected in the SDG samples, no action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were not analyzed in this fraction of the SDG. No action was necessary.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in the SDG. No action was required.

IX.) Internal Standards Performance (ISTD's):

All Internal Standard Performance criteria were met. No action was taken.

X.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No action was required.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All Compound Quantitation and CRQL criteria were met. No action was necessary.

XII.) System Performance:

All System Performance criteria were met. No action was taken.

POLYCHLORINATED BIPHENYLS (PCBS)

SUMMARY

I.) General:

The analyses for PCBs were performed by gas chromatography using SW-846, Method 8082.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems associated with this fraction of the SDG.

MINOR PROBLEMS

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Instrument Performance:

Resolution and PEM standards were not required for SW846, Method 8082 analysis. No action was taken.

III.) Calibration:

All Initial and Continuing Calibration criteria were met. No action was necessary.

IV.) Blanks:

There were no detections in the method blank. No action was taken.

V.) Surrogate Recoveries:

All Surrogate Recovery criteria were met. No action was taken.

VI.) Laboratory Control Samples (LCS):

One set of LCS / LCSD samples was analyzed with this fraction of the SDG. All LCS criteria were met. No action was taken.

VII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD samples were not analyzed in this SDG.. No action was necessary.

VIII.) Field Duplicates:

Field duplicate samples were not analyzed in this SDG. No action was required.

IX.) PCB Identification Summary (PIS):

All PIS criteria were met. No action was taken.

X.) Sample Cleanup Check:

All criteria were met. No action was necessary.

XI.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL's):

All Compound Quantitation and CRQL criteria were met. No action was required.

XII.) System Performance:

All System Performance criteria were met. No action was taken.

COMPLETENESS

Type	Total Analyses	No. Rejects	% Completeness
Volatile Organics	145	0	100
Semivolatile Organics	198	28	85.9
PCBs	21	0	100
Summation	364	28	92.3

The Data Quality Objective (DQO) of 90% was met.

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Mr. David Sanders
Black & Veatch

CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW4-103102-S
BATCH ID: VOC111102W

TRACE ID: CL006-01
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
ANALYST: gmr
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8260 VOLATILES TARGET COMPOUND LIST	RESULT µg/L	REPORTING LIMIT µg/L
Chloromethane	U	1.0
Vinyl chloride	U	1.0
Bromomethane	U	1.0
Chloroethane	U	1.0
Acetone	U	25
1,1-Dichloroethene	2.2	1.0
Methylene chloride	U	5.0
1,2-Dichloroethene (total)	U	1.0
1,1-Dichloroethane	6.4	1.0
2-Butanone	U	25
Chloroform	U	1.0
1,1,1-Trichloroethane	U	1.0
Carbon tetrachloride	U	1.0
Benzene	U	1.0
1,2-Dichloroethane	U	1.0
Trichloroethene	1.4	1.0
1,2-Dichloropropane	U	1.0
Bromodichloromethane	U	1.0
cis-1,3-Dichloropropene	U	1.0
2-Hexanone	U	50
Toluene	U	1.0
trans-1,3-Dichloropropene	U	1.0
1,1,2-Trichloroethane	U	1.0
4-Methyl-2-pentanone	U	50
Tetrachloroethene	2.4	1.0
Dibromochloromethane	U	1.0
Chlorobenzene	U	1.0
Ethyl benzene	U	1.0
Xylenes (total)	U	3.0
Styrene	U	1.0
Bromoform	U	1.0
1,1,2,2-Tetrachloroethane	U	1.0
Carbon disulfide	U	5.0

SURROGATE PERFORMANCE	RECOVERY %	CONTROL LIMIT %
1,2-Dichloroethane-d4	94	70 - 133
Toluene-d8	103	76 - 125
4-Bromofluorobenzene	93	71 - 123
1,2-Dichlorobenzene-d4	97	72 - 123

U = Undetected at reporting limits

MEW Site File
Break7_032445

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW3-103102-S
BATCH ID: VOC111102W

TRACE ID: CL006-02
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
ANALYST: gmr
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8260 VOLATILES TARGET COMPOUND LIST	RESULT µg/L	REPORTING LIMIT µg/L
Chloromethane	U	1.0
Vinyl chloride	U	1.0
Bromomethane	U	1.0
Chloroethane	U	1.0
Acetone	U	25
1,1-Dichloroethene	U	1.0
Methylene chloride	U	5.0
1,2-Dichloroethene (total)	U	1.0
1,1-Dichloroethane	U	1.0
2-Butanone	U	25
Chloroform	U	1.0
1,1,1-Trichloroethane	U	1.0
Carbon tetrachloride	U	1.0
Benzene	8.3	1.0
1,2-Dichloroethane	U	1.0
Trichloroethene	U	1.0
1,2-Dichloropropane	U	1.0
Bromodichloromethane	U	1.0
cis-1,3-Dichloropropene	U	1.0
2-Hexanone	U	50
Toluene	U	1.0
trans-1,3-Dichloropropene	U	1.0
1,1,2-Trichloroethane	U	1.0
4-Methyl-2-pentanone	U	50
Tetrachloroethene	U	1.0
Dibromochloromethane	U	1.0
Chlorobenzene	380	* 10
Ethyl benzene	U	1.0
Xylenes (total)	U	3.0
Styrene	U	1.0
Bromoform	U	1.0
1,1,2,2-Tetrachloroethane	U	1.0
Carbon disulfide	U	5.0

SURROGATE PERFORMANCE	RECOVERY %	CONTROL LIMIT %
1,2-Dichloroethane-d4	96	70 - 133
Toluene-d8	99	76 - 125
4-Bromofluorobenzene	92	71 - 123
1,2-Dichlorobenzene-d4	102	72 - 123

* The reporting limit was raised due to a dilution because of high analyte concentrations.

U = Undetected at reporting limits

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW11-103102-S
BATCH ID: VOC111102W

TRACE ID: CL006-03
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
ANALYST: gmr
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8260 VOLATILES TARGET COMPOUND LIST	RESULT µg/L	REPORTING LIMIT µg/L
Chloromethane	U	1.0
Vinyl chloride	U	1.0
Bromomethane	U	1.0
Chloroethane	U	1.0
Acetone	U	25
1,1-Dichloroethene	U	1.0
Methylene chloride	U	5.0
1,2-Dichloroethene (total)	5.4	1.0
1,1-Dichloroethane	2.8	1.0
2-Butanone	U	25
Chloroform	U	1.0
1,1,1-Trichloroethane	U	1.0
Carbon tetrachloride	U	1.0
Benzene	U	1.0
1,2-Dichloroethane	U	1.0
Trichloroethene	3.2	1.0
1,2-Dichloropropane	U	1.0
Bromodichloromethane	U	1.0
cis-1,3-Dichloropropene	U	1.0
2-Hexanone	U	50
Toluene	U	1.0
trans-1,3-Dichloropropene	U	1.0
1,1,2-Trichloroethane	U	1.0
4-Methyl-2-pentanone	U	50
Tetrachloroethene	U	1.0
Dibromochloromethane	U	1.0
Chlorobenzene	1.9	1.0
Ethyl benzene	U	1.0
Xylenes (total)	U	3.0
Styrene	U	1.0
Bromoform	U	1.0
1,1,2,2-Tetrachloroethane	U	1.0
Carbon disulfide	U	5.0

SURROGATE PERFORMANCE	RECOVERY %	CONTROL LIMIT %
1,2-Dichloroethane-d4	98	70 - 133
Toluene-d8	102	76 - 125
4-Bromofluorobenzene	93	71 - 123
1,2-Dichlorobenzene-d4	101	72 - 123

U = Undetected at reporting limits

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: TB-1
BATCH ID: VOC111102W

TRACE ID: CL006-04
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
ANALYST: gmr
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8260 VOLATILES TARGET COMPOUND LIST	RESULT µg/L	REPORTING LIMIT µg/L
Chloromethane	U	1.0
Vinyl chloride	U	1.0
Bromomethane	U	1.0
Chloroethane	U	1.0
Acetone	U	25
1,1-Dichloroethene	U	1.0
Methylene chloride	U	5.0
1,2-Dichloroethene (total)	U	1.0
1,1-Dichloroethane	U	1.0
2-Butanone	U	25
Chloroform	U	1.0
1,1,1-Trichloroethane	U	1.0
Carbon tetrachloride	U	1.0
Benzene	U	1.0
1,2-Dichloroethane	U	1.0
Trichloroethene	U	1.0
1,2-Dichloropropane	U	1.0
Bromodichloromethane	U	1.0
cis-1,3-Dichloropropene	U	1.0
2-Hexanone	U	50
Toluene	U	1.0
trans-1,3-Dichloropropene	U	1.0
1,1,2-Trichloroethane	U	1.0
4-Methyl-2-pentanone	U	50
Tetrachloroethene	U	1.0
Dibromochloromethane	U	1.0
Chlorobenzene	U	1.0
Ethyl benzene	U	1.0
Xylenes (total)	U	3.0
Styrene	U	1.0
Bromoform	U	1.0
1,1,2,2-Tetrachloroethane	U	1.0
Carbon disulfide	U	5.0

SURROGATE PERFORMANCE	RECOVERY %	CONTROL LIMIT %
1,2-Dichloroethane-d4	91	70 - 133
Toluene-d8	103	76 - 125
4-Bromofluorobenzene	92	71 - 123
1,2-Dichlorobenzene-d4	96	72 - 123

U = Undetected at reporting limits

MEW Site File
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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: TB-2
BATCH ID: VOC111102W

TRACE ID: CL006-05
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
ANALYST: gmr
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8260 VOLATILES TARGET COMPOUND LIST	RESULT µg/L	REPORTING LIMIT µg/L
Chloromethane	U	1.0
Vinyl chloride	U	1.0
Bromomethane	U	1.0
Chloroethane	U	1.0
Acetone	U	25
1,1-Dichloroethene	U	1.0
Methylene chloride	U	5.0
1,2-Dichloroethene (total)	U	1.0
1,1-Dichloroethane	U	1.0
2-Butanone	U	25
Chloroform	U	1.0
1,1,1-Trichloroethane	U	1.0
Carbon tetrachloride	U	1.0
Benzene	U	1.0
1,2-Dichloroethane	U	1.0
Trichloroethene	U	1.0
1,2-Dichloropropane	U	1.0
Bromodichloromethane	U	1.0
cis-1,3-Dichloropropene	U	1.0
2-Hexanone	U	50
Toluene	U	1.0
trans-1,3-Dichloropropene	U	1.0
1,1,2-Trichloroethane	U	1.0
4-Methyl-2-pentanone	U	50
Tetrachloroethene	U	1.0
Dibromochloromethane	U	1.0
Chlorobenzene	U	1.0
Ethyl benzene	U	1.0
Xylenes (total)	U	3.0
Styrene	U	1.0
Bromoform	U	1.0
1,1,2,2-Tetrachloroethane	U	1.0
Carbon disulfide	U	5.0

SURROGATE PERFORMANCE	RECOVERY %	CONTROL LIMIT %
1,2-Dichloroethane-d4	93	70 - 133
Toluene-d8	102	76 - 125
4-Bromofluorobenzene	95	71 - 123
1,2-Dichlorobenzene-d4	99	72 - 123

U = Undetected at reporting limits

MEW Site File
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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW4-103102-S
BATCH ID: BNA110403W

TRACE ID: CL006-01
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
EXTRACTION DATE: 11/04/02
ANALYST: tc
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
bis(2-Chloroethyl)ether	U	1.0
2-Chlorophenol	U R	5.0
Phenol	U R	5.0
1,3-Dichlorobenzene	U	5.0
1,4-Dichlorobenzene	U	5.0
1,2-Dichlorobenzene	U	5.0
Benzyl alcohol	U	50
bis(2-Chloroisopropyl)ether	U	5.0
2-Methylphenol	U R	5.0
3/4-Methylphenol	U R	5.0
N-Nitroso-di-n-propylamine	U	5.0
Hexachloroethane	U	5.0
Nitrobenzene	U	2.0
Isophorone	U	5.0
2-Nitrophenol	U R	5.0
2,4-Dimethylphenol	U R	5.0
bis(2-Chloroethoxy)methane	U	5.0
Benzoic acid	U	50
1,2,4-Trichlorobenzene	U	5.0
2,4-Dichlorophenol	U R	5.0
Naphthalene	U	5.0
4-Chloroaniline	U	20
Hexachloro-1,3-butadiene	U	5.0
4-Chloro-3-methylphenol	U R	5.0
2-Methylnaphthalene	U	5.0
Hexachlorocyclopentadiene	U	5.0
2,4,6-Trichlorophenol	U R	4.0
2,4,5-Trichlorophenol	U R	5.0
2-Chloronaphthalene	U	5.0
2-Nitroaniline	U	20
Dimethylphthalate	U	5.0
Acenaphthylene	U	5.0
2,6-Dinitrotoluene	U	5.0
3-Nitroaniline	U	20
Acenaphthene	U	5.0
Dibenzofuran	U	5.0
2,4-Dinitrotoluene	U	5.0
4-Nitrophenol	U R	20
2,4-Dinitrophenol	U R	20
Diethylphthalate	U	5.0
Fluorene	U	5.0

MEW Site File
Break7_032450

12-6-02

U = Undetected at reporting limits

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CLIENT: Black & Veatch
TRACE ID: CL006-01

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
4-Chlorophenyl-phenylether	U	5.0
4-Nitroaniline	U	20
4,6-Dinitro-2-methylphenol	U R	20
N-Nitrosodiphenylamine	U	5.0
4-Bromophenyl-phenylether	U	5.0
Hexachlorobenzene	U	5.0
Pentachlorophenol	U R	20
Phenanthrene	U	5.0
Anthracene	U	5.0
Carbazole	U	10
Di-n-butylphthalate	U	5.0
Fluoranthene	U	5.0
Pyrene	U	5.0
Butylbenzylphthalate	U	5.0
Benzo(a)anthracene	U	1.0
Chrysene	U	5.0
3,3'-Dichlorobenzidine	U	20
bis(2-Ethylhexyl)phthalate	U	5.0
Di-n-octylphthalate	6.9	5.0
Benzo(b)fluoranthene	U	2.0
Benzo(k)fluoranthene	U	5.0
Benzo(a)pyrene	U	2.0
Indeno(1,2,3-cd)pyrene	U	2.0
Dibenzo(a,h)anthracene	U	2.0
Benzo(g,h,i)perylene	U	5.0

12-6-02

SURROGATE PERFORMANCE	RECOVERY	CONTROL LIMIT
2-Fluorophenol	23%	21% - 59%
Phenol-d5	*	12% - 36%
Nitrobenzene-d5	69%	33% - 101%
2-Fluorobiphenyl	91%	34% - 107%
2,4,6-Tribromophenol	83%	35% - 114%
p-Terphenyl-d14	64%	41% - 116%

* One of the acid surrogate recoveries was outside the control limits. Since the other two acid surrogates were within the control limits, no data requires qualification.

MEW Site File
Break7_032451

U = Undetected at reporting limits

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2241 Black Creek Road
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www.trace-labs.com

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Mr. David Sanders
Black & Veatch

CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW3-103102-S
BATCH ID: BNA110403W

TRACE ID: CL006-02
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
EXTRACTION DATE: 11/04/02
ANALYST: tc
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
bis(2-Chloroethyl)ether	U	1.0
2-Chlorophenol	U	5.0
Phenol	U	5.0
1,3-Dichlorobenzene	8.0	5.0
1,4-Dichlorobenzene	20	5.0
1,2-Dichlorobenzene	U	5.0
Benzyl alcohol	U	50
bis(2-Chloroisopropyl)ether	U	5.0
2-Methylphenol	U	5.0
3/4-Methylphenol	U	5.0
N-Nitroso-di-n-propylamine	U	5.0
Hexachloroethane	U	5.0
Nitrobenzene	U	2.0
Isophorone	U	5.0
2-Nitrophenol	U	5.0
2,4-Dimethylphenol	U	5.0
bis(2-Chloroethoxy)methane	U	5.0
Benzoic acid	U	50
1,2,4-Trichlorobenzene	U	5.0
2,4-Dichlorophenol	U	5.0
Naphthalene	U	5.0
4-Chloroaniline	U	20
Hexachloro-1,3-butadiene	U	5.0
4-Chloro-3-methylphenol	U	5.0
2-Methylnaphthalene	U	5.0
Hexachlorocyclopentadiene	U	5.0
2,4,6-Trichlorophenol	U	4.0
2,4,5-Trichlorophenol	U	5.0
2-Chloronaphthalene	U	5.0
2-Nitroaniline	U	20
Dimethylphthalate	U	5.0
Acenaphthylene	U	5.0
2,6-Dinitrotoluene	U	5.0
3-Nitroaniline	U	20
Acenaphthene	U	5.0
Dibenzofuran	U	5.0
2,4-Dinitrotoluene	U	5.0
4-Nitrophenol	U	20
2,4-Dinitrophenol	U	20
Diethylphthalate	U	5.0
Fluorene	U	5.0

MEW Site File
Break7_032452

12-2-02

U = Undetected at reporting limits

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CLIENT: Black & Veatch
TRACE ID: CL006-02

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
4-Chlorophenyl-phenylether	U	5.0
4-Nitroaniline	U	20
4,6-Dinitro-2-methylphenol	U J	20
N-Nitrosodiphenylamine	U	5.0
4-Bromophenyl-phenylether	U	5.0
Hexachlorobenzene	U	5.0
Pentachlorophenol	U J	20
Phenanthrene	U	5.0
Anthracene	U	5.0
Carbazole	U	10
Di-n-butylphthalate	U	5.0
Fluoranthene	U	5.0
Pyrene	U	5.0
Butylbenzylphthalate	U	5.0
Benzo(a)anthracene	U	1.0
Chrysene	U	5.0
3,3'-Dichlorobenzidine	U	20
bis(2-Ethylhexyl)phthalate	U	5.0
Di-n-octylphthalate	U	5.0
Benzo(b)fluoranthene	U	2.0
Benzo(k)fluoranthene	U	5.0
Benzo(a)pyrene	U	2.0
Indeno(1,2,3-cd)pyrene	U	2.0
Dibenzo(a,h)anthracene	U	2.0
Benzo(g,h,i)perylene	U	5.0

SURROGATE PERFORMANCE	RECOVERY	CONTROL LIMIT
2-Fluorophenol	33%	21% - 59%
Phenol-d5	13%	12% - 36%
Nitrobenzene-d5	66%	33% - 101%
2-Fluorobiphenyl	82%	34% - 107%
2,4,6-Tribromophenol	96%	35% - 114%
p-Terphenyl-d14	59%	41% - 116%

MEW Site File
Break7_032453

U = Undetected at reporting limits

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Black & Veatch

CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW11-103102-S
BATCH ID: BNA110403W

TRACE ID: CL006-03
REPORT DATE: 11/18/02
ANALYSIS DATE: 11/11/02
EXTRACTION DATE: 11/04/02
ANALYST: tc
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
bis(2-Chloroethyl)ether	U	1.0
2-Chlorophenol	U R	5.0
Phenol	U R	5.0
1,3-Dichlorobenzene	U	5.0
1,4-Dichlorobenzene	U	5.0
1,2-Dichlorobenzene	U	5.0
Benzyl alcohol	U	50
bis(2-Chloroisopropyl)ether	U	5.0
2-Methylphenol	U R	5.0
3/4-Methylphenol	U R	5.0
N-Nitroso-di-n-propylamine	U	5.0
Hexachloroethane	U	5.0
Nitrobenzene	U	2.0
Isophorone	U	5.0
2-Nitrophenol	U R	5.0
2,4-Dimethylphenol	U R	5.0
bis(2-Chloroethoxy)methane	U	5.0
Benzoic acid	U	50
1,2,4-Trichlorobenzene	U	5.0
2,4-Dichlorophenol	U R	5.0
Naphthalene	U	5.0
4-Chloroaniline	U	20
Hexachloro-1,3-butadiene	U	5.0
4-Chloro-3-methylphenol	U R	5.0
2-Methylnaphthalene	U	5.0
Hexachlorocyclopentadiene	U	5.0
2,4,6-Trichlorophenol	U R	4.0
2,4,5-Trichlorophenol	U R	5.0
2-Chloronaphthalene	U	5.0
2-Nitroaniline	U	20
Dimethylphthalate	U	5.0
Acenaphthylene	U	5.0
2,6-Dinitrotoluene	U	5.0
3-Nitroaniline	U	20
Acenaphthene	U	5.0
Dibenzofuran	U	5.0
2,4-Dinitrotoluene	U	5.0
4-Nitrophenol	U R	20
2,4-Dinitrophenol	U R	20
Diethylphthalate	U	5.0
Fluorene	U	5.0

U = Undetected at reporting limits

MEW Site File
Break7_032454

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CLIENT: Black & Veatch
TRACE ID: CL006-03

EPA 8270 MASS SPECTROMETRY SEMI-VOLATILE ORGANICS TARGET COMPOUND LIST	RESULT ug/L	REPORTING LIMIT ug/L
4-Chlorophenyl-phenylether	U	5.0
4-Nitroaniline	U	20
4,6-Dinitro-2-methylphenol	U R	20
N-Nitrosodiphenylamine	U	5.0
4-Bromophenyl-phenylether	U	5.0
Hexachlorobenzene	U	5.0
Pentachlorophenol	U R	20
Phenanthrene	U	5.0
Anthracene	U	5.0
Carbazole	U	10
Di-n-butylphthalate	U	5.0
Fluoranthene	U	5.0
Pyrene	U	5.0
Butylbenzylphthalate	U	5.0
Benzo(a)anthracene	U	1.0
Chrysene	U	5.0
3,3'-Dichlorobenzidine	U	20
bis(2-Ethylhexyl)phthalate	U	5.0
Di-n-octylphthalate	U	5.0
Benzo(b)fluoranthene	U	2.0
Benzo(k)fluoranthene	U	5.0
Benzo(a)pyrene	U	2.0
Indeno(1,2,3-cd)pyrene	U	2.0
Dibenzo(a,h)anthracene	U	2.0
Benzo(g,h,i)perylene	U	5.0

12-6-02

SURROGATE PERFORMANCE	RECOVERY	CONTROL LIMIT
2-Fluorophenol	24%	21% - 59%
Phenol-d5	*	12% - 36%
Nitrobenzene-d5	49%	33% - 101%
2-Fluorobiphenyl	63%	34% - 107%
2,4,6-Tribromophenol	84%	35% - 114%
p-Terphenyl-d14	54%	41% - 116%

* One of the acid surrogate recoveries was outside the control limits. Since the other two acid surrogates were within the control limits, no data requires qualification.

MEW Site File
Break7_032455

U = Undetected at reporting limits

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW4-103102-S
BATCH ID: PCB110105W

TRACE ID: CL006-01
REPORT DATE: 11/11/02
ANALYSIS DATE: 11/05/02
EXTRACTION DATE: 11/05/02
ANALYST: tml
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8082 PCBs	RESULT µg/L	REPORTING LIMIT µg/L
Aroclor-1016	U	0.20
Aroclor-1221	U	0.20
Aroclor-1232	U	0.40
Aroclor-1242	U	0.20
Aroclor-1248	U	0.20
Aroclor-1254	U	0.20
Aroclor-1260	U	0.20

SURROGATE PERFORMANCE	RECOVERY	CONTROL LIMIT
Decachlorobiphenyl	56%	32% - 95%
Tetrachloro-m-xylene	51%	38% - 86%

U = Undetected at reporting limits

MEW Site File
Break7_032456

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW3-103102-S
BATCH ID: PCB110105W

TRACE ID: CL006-02
REPORT DATE: 11/11/02
ANALYSIS DATE: 11/05/02
EXTRACTION DATE: 11/05/02
ANALYST: tml
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8082 (Filtered) PCBs	RESULT µg/L	REPORTING LIMIT µg/L
Aroclor-1016	U	0.20
Aroclor-1221	U	0.20
Aroclor-1232	U	0.40
Aroclor-1242	U	0.20
Aroclor-1248	U	0.20
Aroclor-1254	U	0.20
Aroclor-1260	U	0.20

SURROGATE PERFORMANCE	RECOVERY	CONTROL LIMIT
Decachlorobiphenyl	53%	32% - 95%
Tetrachloro-m-xylene	53%	38% - 86%

U = Undetected at reporting limits

MEW Site File
Break7_032457

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CLIENT ID: Proj. #046501.0238
Missouri Electric Works Site
SAMPLE ID: MW11-103102-S
BATCH ID: PCB110105W

TRACE ID: CL006-03
REPORT DATE: 11/11/02
ANALYSIS DATE: 11/05/02
EXTRACTION DATE: 11/05/02
ANALYST: tml
D.L. MULTIPLIER: 1
SAMPLE DATE: 10/31/02
SAMPLE RECEIVED: 11/01/02
SAMPLE TYPE: Water
SAMPLER: jb

EPA 8082 (Filtered) PCBs	RESULT µg/L	REPORTING LIMIT µg/L
Aroclor-1016	U	0.20
Aroclor-1221	U	0.20
Aroclor-1232	U	0.40
Aroclor-1242	U	0.20
Aroclor-1248	U	0.20
Aroclor-1254	U	0.20
Aroclor-1260	U	0.20
SURROGATE PERFORMANCE	**RECOVERY**	**CONTROL LIMIT**
Decachlorobiphenyl	51%	32% - 95%
Tetrachloro-m-xylene	49%	38% - 86%

U = Undetected at reporting limits